

STUDENT SPOTLIGHT

Tori Biach -- *Northern State University*
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Northern State University (NSU) biology and chemistry student Tori Biach is analyzing the molecular basis of how the plant pathogen, *Pseudomonas syringae*, induces double strand breaks (DSBs) in the DNA of its host. *Pseudomonas syringae* has been shown to induce DSBs in the plant model system, *Arabidopsis thaliana*. However, the molecular weapons that cause this damage are unknown. Double strand breaks are when both sides of the DNA double helix become severed and if left unrepaired,



can result in entire segments of the chromosome becoming lost during cell division. Cells lacking these segments either die immediately or suffer severe impairment. Biach is testing a variety of effector proteins from *P. syringae* to look for evidence of a role in DSB formation. To do this, Biach is inoculating *A. thaliana* plants with various *P. syringae* strains harboring unique effector proteins. Currently, no information exists on the molecular weapons pathogens use for DSB induction. Her study will answer a valuable question about the potential connection between DSBs and effector proteins.

“My fascination with science is its interconnectedness,” Biach said. “I love how each course builds upon the previous principles and how all of this knowledge can be applied towards the unknown.”

Biach is currently pursuing degrees in chemistry and biochemistry and sits as the 2016-2017 president of the Pre-Medical Society at NSU. She is part of the NSU Division II volleyball team, having received multiple athletic academic awards including the Haier Achievement Award Honorable

Mention and CoSIDA Academic All-District Team. Biach has also been presented the Outstanding Chemistry Senior Award for South Dakota schools and received two scholarships.